

**IN THE UNITED STATES DISTRICT COURT  
FOR THE SOUTHERN DISTRICT OF NEW YORK**

JANE STREET GROUP, LLC,

*Plaintiff,*

v.

MILLENNIUM MANAGEMENT LLC,  
DOUGLAS SCHADEWALD, and DANIEL  
SPOTTISWOOD,

*Defendants.*

Hon. Paul A. Engelmayer

Case No. 24-CV-02783

**Oral Argument Requested**

**Under Seal**

**DEFENDANT DOUGLAS SCHADEWALD’S DECLARATION IN SUPPORT OF  
DEFENDANTS’ OPPOSITION TO PLAINTIFF’S MOTION FOR A TEMPORARY  
RESTRAINING ORDER**

I, DOUGLAS L. SCHADEWALD, pursuant to 28 U.S.C. § 1746 and upon penalty of perjury, hereby declare as follows:

1. I am employed as a portfolio manager by an affiliate of Defendant Millennium Management, LLC (“Millennium”). I am a Defendant in this lawsuit. I submit this declaration in support of Defendants’ opposition to Plaintiff’s motion for a temporary restraining order. This declaration is based upon my personal knowledge.
2. Before my employment at Millennium, I was employed as a trader at Plaintiff Jane Street Group, LLC (“Jane Street”).
3. I understand that Jane Street has asserted claims against me relating to my employment at Millennium.
4. I have reviewed the complaint filed by Jane Street against me (the “Complaint”) in this action and the Declaration of Jeff Nanney dated April 16, 2024. I submit this declaration

to respond to certain untrue allegations made by Jane Street and to provide additional facts for the Court's consideration.

**Millennium Did Not Offer Me Money For Jane Street's Secrets**

5. The Complaint makes much of my compensation with Millennium, going so far as to cast me as an outright **thief**: accusing me of accepting “above-market compensation” from Millennium in exchange for delivering “Jane Street’s confidential intellectual property and trade secrets.” Compl. ¶ 128-129.
6. This accusation is a lie.
7. Jane Street’s false accusation—which I heard about from the press before Jane Street—is extremely offensive. It has harmed me, my family, my friends, and my colleagues. It is damaging to my personal and professional reputation.
8. Worse still, Jane Street leveled its false accusation against me “on information and belief”—without a shred of evidence in support. Compl. ¶ 128-129.
9. I am shocked that Jane Street’s most senior partners, Rob Granieri and Sandor Lehoczky—individuals who have known me for years and who know me to be a person of integrity—would publicly smear my name to try to prevent me from doing honest work for a competitor after Jane Street stopped being a good fit.

**Jane Street Hired Me To Take Advantage Of My Pre-Existing Expertise And Experience In [REDACTED]**

10. Before joining Jane Street, I accumulated years of experience and expertise in trading [REDACTED]. I developed this experience and expertise through, for example, my seven years working at Barclays. I had been a

member of the Trading Advisory Committee of the Chicago Futures Exchange for two years before joining Jane Street.

11. When Jane Street hired me, it knew (and acknowledged in writing) that I had developed such pre-existing experience and expertise. Defs. Ex. 1 at 1 (“Jane Street acknowledges and recognizes your extensive prior experiences in trading [REDACTED] [REDACTED]”). Jane Street expected me to draw on that experience and expertise—and during the time I was employed by Jane Street, it knew that I was in fact drawing on such pre-existing expertise and experience.
12. I am surprised that Jane Street now appears to be reversing its position and arguing that at Millennium it is unlawful for me to draw on my extensive prior expertise and experiences in trading [REDACTED], given that this is exactly what Jane Street itself hired me to do.
13. In 2011, I graduated from Harvard University with a bachelor’s degree in applied mathematics with economics.
14. After graduation, I began my career at Barclays Capital (“Barclays”) where I landed a position on Barclays’ index options trading desk.
15. For seven years, I advanced through roles of increasing responsibility within Barclays’ index options trading desk, managing increasingly sizable books within Barclays.
16. Between approximately 2013 and 2015, I managed Barclays’ Nasdaq index options portfolio.
17. At that time, I also managed Barclays’ Russell index options portfolio.

18. From approximately 2015-2016, I managed Barclays' international index options portfolio based out of the U.S. During this period, I expanded our U.S. trading to include Eurostoxx and Nikkei options into our portfolio.
19. Around April 2016, I was given responsibility for Barclays' largest index options books—and one of the largest index options books anywhere on Wall Street—their S&P 500 index options and VIX futures<sup>1</sup> portfolio.
20. I was excited by the promotion to managing Barclays' S&P 500 options and VIX futures portfolio, as it was a tremendous opportunity for someone as early in their career as I was. I worked through 2016 within Barclays to set up the infrastructure and get the approvals needed for Barclays to trade options on S&P 500 futures on the Chicago Mercantile Exchange (“CME”). This ultimately became a large new profit center for Barclays.
21. I was a member of the Trading Advisory Committee of the Chicago Futures Exchange from 2016 to 2022.
22. In 2016, while I was employed at Barclays, Jane Street reached out through a headhunter to interview me for a position with Jane Street. In early 2017, after two or so interviews, I declined to continue the interview process.
23. In late 2017, I was named one of Forbes Magazine's 2018 “30 Under 30” for Finance.

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<sup>1</sup> The CBOE Volatility Index (“VIX”) is a real-time index calculated to represent market expectations for volatility (i.e., price changes) within the S&P 500. Trading VIX options and futures allows investors to gain exposure to, or hedge against, S&P 500 volatility.

24. I managed Barclays' S&P 500 options and VIX futures portfolio in February 2018 during the so-called "Volmageddon,"<sup>2</sup> a rapid spike in volatility that wiped out many volatility options traders on Wall Street whose positions left them badly exposed to the dramatic change in the VIX index. Our trading portfolio at Barclays performed very well during that volatile week of February 5, 2018.
25. On or about February 20, 2018, shortly after I navigated the "Volmageddon" at Barclays, Jane Street again reached out to me through a headhunter to ask me to interview for a position with Jane Street. At that time, Jane Street did not have a presence in S&P 500 index options, and, I believe, realized they could benefit from hiring a strong S&P 500 index option trader given the market opportunities that became apparent during Volmageddon. Volmageddon was widely covered in the financial news, and I believe Jane Street understood they needed to hire someone with expertise to break into a new business line in which they had no experience.
26. After several interviews and, to my understanding, much internal discussion, Jane Street offered me a position to build an S&P 500 options business within Jane Street.
27. When I accepted the position, Jane Street and I executed an agreement titled "Notice, Non-Interference and Restricted Trading Agreement." Defs. Ex. 1 (the "2018 Schadewald Agreement"). In the 2018 Schadewald Agreement, Jane Street "acknowledge[d] and recognize[d]" my "extensive prior experiences in trading [REDACTED] [REDACTED]" *Id.* 1 (emphasis added).

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<sup>2</sup> Luke Kawa, *The Day The Vix Doubled: Tales Of 'Volmageddon,'* BLOOMBERG (Feb. 6, 2019, 9:16 AM), <https://www.bloomberg.com/news/articles/2019-02-06/the-day-the-vix-doubled-tales-of-volmageddon>.

28. When Jane Street hired me, and during the entire time I was employed there, nobody at Jane Street ever indicated to me that Jane Street believed it was unable to lawfully take advantage of my extensive prior experience and knowledge accumulated over the course of my career, on the grounds that such experience and knowledge constituted confidential or proprietary information that belonged to Barclays (my immediately preceding employer).

**I Am Not Bound By Any Non-Compete Or Garden-Leave Agreements**

29. The 2018 Schadewald Agreement included three types of restrictions, all of which expired before I left Jane Street, as a result of Jane Street voluntarily electing not to extend those restrictions.

30. The 2018 Schadewald Agreement included (now expired) “**Garden Leave**” provisions, which ostensibly give Jane Street the right to prevent me from working in a competing business for one year after my departure, as follows:

**1.4 Restrictions During Garden Leave.** You agree that, while on Garden Leave, you will continue to owe a duty of loyalty to Jane Street and you will not directly or indirectly in any capacity (whether as employee, consultant, owner, principal, agent, partner or otherwise) engage or participate in, or provide services to, any Competing Business. For purposes of this agreement, “Competing Business” means any person or entity (whether operating independently or as part of a group of affiliated entities) engaged in a business related to the trading of securities or other financial products (including equities, bonds, options, futures, ETFs, currencies, and commodities) anywhere in the world, or the development of software, systems or techniques to support or enhance such trading.”

Defs. Ex. 1 § 1.4.

31. The 2018 Schadewald Agreement also imposed a (now expired) “**Non-Interference Restriction**.” If it were in effect, this restriction ostensibly would have prohibited me

from engaging in certain forms of solicitation of Jane Street employees to a competing business for a period of up to two years after my Garden Leave period. *Id.* § 2.

32. The 2018 Schadewald Agreement also included (now expired) “**Restricted Trading Activity**” clauses. If in effect, those provisions ostensibly would have allowed Jane Street to restrict me for an additional year after Garden Leave from trading single-stock equities or single-stock equity options, as follows:

**3.1 Trading Activity Restrictions.** During any Garden Leave and thereafter for the Trading Activity Restricted Period, you agree that you will not be involved directly or indirectly in any manner or capacity in strategies involving the trading of single stock equities or single stock equity options (“Covered Equities Trading”). For the avoidance of doubt, “Covered Equities Trading” does not include the trading of [REDACTED]”

Defs. Ex. 1 § 3.

33. The 2018 Schadewald Agreement also contained a “**Sunset**” provision under which the restrictions imposed by the Garden Leave, Non-Interference Restriction, and Restricted Trading Activity provisions would be lifted after the fourth anniversary of my employment at Jane Street. Defs. Ex. 1 § 11. The Sunset provision allowed Jane Street—at its unilateral election—to extend these obligations by providing written notice within 30 days preceding my fourth anniversary.

34. Jane Street elected not to extend my Garden Leave, Non-Interference Restriction, or Restricted Trading Activity obligations. Long before I ever considered leaving Jane Street, Jane Street’s head of human resources, Jack Johnson, confirmed that any non-compete had expired. When I departed, Jane Street’s head of Human Resources, Jack Johnson, again confirmed via email and Slack chat that I had no such restrictions.

35. In 2023, I executed the Confidentiality and Intellectual Property Agreement (the “2023 Schadewald Agreement”). Plts. Ex. A. Among other things, it provides in Section 1.3

that “Company Confidential Information” does not “include information, knowledge or data that constitutes general skills, knowledge and experience gained during the Undersigned’s employment or association ... with Company; information known by the Undersigned prior to the Undersigned’s employment by ... the Company as evidenced by the Undersigned’s records predating the Undersigned’s employment by ... the Company; information publicly available, generally known, or readily ascertainable from public sources within the industry or trade in which Company or its affiliates compete through no fault of the Undersigned; and information disclosed to the Undersigned by a third party not in a relation of confidentiality with Company or any of its affiliates.” Plts. Ex. A § 1.3.

**Once I Joined Jane Street,  
I Built A Successful S&P 500 Trading Business**

36. Once I joined Jane Street, I began working to build Jane Street’s S&P 500 options business. Initially, the business was predominantly my own trading in S&P 500 options. But over time my team grew to include approximately 9 traders in New York and 6 traders in Chicago.

37. My S&P 500 options business became successful soon after it began.

- a. In 2020, my team and I generated [REDACTED] for Jane Street.
- b. In 2021, my team and I generated [REDACTED] for Jane Street.
- c. In 2022, my team and I generated [REDACTED] for Jane Street.
- d. In 2023, my team and I generated [REDACTED] for Jane Street.

38. [REDACTED]  
[REDACTED]  
[REDACTED].



39. I believe that the S&P 500 options business I developed with my team members at Jane Street was among the top performing S&P 500 options trading businesses in the market.

**Beginning In Late 2022, I Oversaw the Development  
Of A Successful New India [REDACTED] Trading Business Within Jane Street**

40. In late 2022, my managers, Andrew Westerdale and Sandor Lehoczky, directed me to spend more time focusing on options trading out of Jane Street's Hong Kong office. I began working on this in January 2023 and, on or around February 27, 2023, visited the Hong Kong office. Jane Street's Complaint suggests that the India options business was operated by 20-25 individuals working since 2018 (Mot. 5), but when I arrived, only two option traders—one of whom was Daniel Spottiswood—were focusing at all on India options. After Daniel and I became involved, the trading profits of that business grew exponentially, from [REDACTED] in 2022 to [REDACTED] in 2023.

41. In my 2023 performance review, Sandor Lehoczky stated that I was the senior trader who was responsible for the India trading business.

**Jane Street Mischaracterizes Statements I Made While Employed There**

42. In the Complaint, Jane Street quoted me as making a handful of statements during 2023, which appear to be references to Plaintiff's Exhibits C, D, and G. The way my statements are quoted and used in the Complaint may give misimpressions, which I address below.

43. **Exhibit C**. Exhibit C is an email from September 2023, between me and Daniel Spottiswood in which I wrote, "[REDACTED]

[REDACTED]."

44. Jane Street's Complaint describes this as Daniel Spottiswood saying he was

“‘consistently shocked’ by the success of the Trading Strategy.” Compl. ¶ 55 (emphasis added). Aside from mixing up me and Daniel Spottiswood, this is not a correct characterization of what I said in the email.

45. To begin with, as I explain further below, I have not been able to understand what is the

“Trading Strategy” that Jane Street is claiming based on the Complaint and Jeff Nanney's Declaration. As far as I can tell, the “Trading Strategy” they claim would cover any type of options trading in India. See below ¶¶ 94-100. That is not what I was expressing surprise over in Exhibit C.

46. In any event, in reality, my comment in Exhibit C does not express surprise at any particular trading strategy, much less one proprietary to Jane Street.

47. Instead, I expressed surprise that, at that particular point in time, we [REDACTED]

[REDACTED]

[REDACTED] In other words, I was surprised that [REDACTED] at that snapshot in time.

48. More specifically, in the email in Exhibit C, I was expressing surprise at [REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

49. [REDACTED] are not proprietary to Jane Street and are among the simplest trading strategies known to options traders.<sup>3</sup>

50. [REDACTED] was not based on any confidential or proprietary information. It was based on information available to the public. At that time, the demand for options in the India options was certainly known to others within the industry—for example, [REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED] Press coverage has only accelerated since then and this is covered in the financial press almost daily.<sup>5</sup>

51. **Exhibit D**. Exhibit D appears to reflect a portion of a chat on Slack between me and Chris Roberts from March 2023. The document appears to omit part of my conversation with Mr. Roberts—I am not sure why Jane Street excluded that context. In the excerpted portion of the Slack chat that Jane Street chose to include in the exhibit, I wrote “yaeh, we are building up India super rapidly. but we consider that IP. definitely don’t want people knowing.”

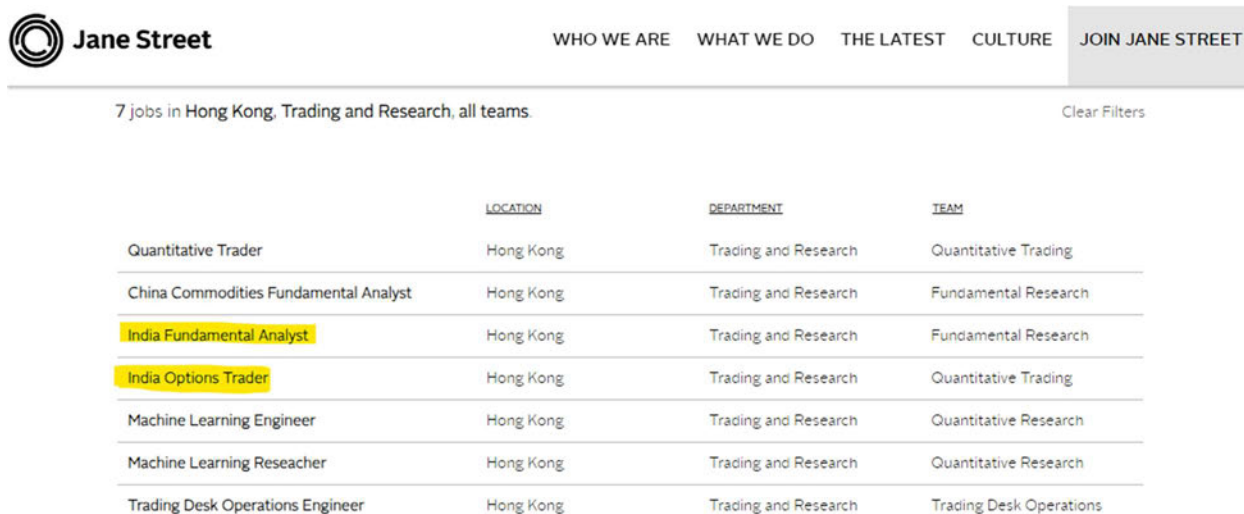
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<sup>3</sup> [REDACTED]

<sup>4</sup> [REDACTED]

<sup>5</sup> See below ¶¶ 77-85.

52. Jane Street publicly advertises that it is seeking new talent to expand its Indian options trading operations. For example, Jane Street posts on its website today that it is hiring an “India Fundamental Analyst” and an “India Options Trader” for its Hong Kong office.<sup>6</sup>



	LOCATION	DEPARTMENT	TEAM
Quantitative Trader	Hong Kong	Trading and Research	Quantitative Trading
China Commodities Fundamental Analyst	Hong Kong	Trading and Research	Fundamental Research
India Fundamental Analyst	Hong Kong	Trading and Research	Fundamental Research
India Options Trader	Hong Kong	Trading and Research	Quantitative Trading
Machine Learning Engineer	Hong Kong	Trading and Research	Quantitative Research
Machine Learning Researcher	Hong Kong	Trading and Research	Quantitative Research
Trading Desk Operations Engineer	Hong Kong	Trading and Research	Trading Desk Operations

53. Also, during my employment, Jane Street engaged third-party headhunters to seek out and hire traders of Indian options. Jane Street’s interest in the Indian options market was no secret—it did not keep its interest in [REDACTED] in India confidential from third party headhunters or candidates.

54. Jane Street’s Complaint characterizes what I wrote in the excerpt from the chat as me “emphasiz[ing] that Jane Street’s Trading Strategy was ... something Jane Street ‘definitely [didn’t] want people knowing.’” Compl. ¶ 94 (emphasis added.) This is not a correct characterization of my statement.

<sup>6</sup> *Open Roles*, JANE ST., <https://www.janestreet.com/join-jane-street/open-roles/?type=experienced-candidates&location=hong-kong&department=trading-and-research> (last visited Apr. 18, 2024).

55. My statement in Exhibit D is not in reference to Jane Street’s claimed “Trading Strategy” (whatever that is). Instead, I was stating that I did not want it widely known that we were building up our India [REDACTED] desk at that time.
56. At Millennium, I do not rely on or disclose the fact that, more than a year ago, Jane Street was building up its India [REDACTED] desk.
57. Also, it is not uncommon for me to refer to information that I would prefer not to be publicly disclosed as “IP” or “IP sensitive.” My informal use of those terms in an informal chat conversation did not mean that I had actually done any analysis or formed any conclusion that the fact that we were growing our India team was a trade secret or the type of “confidential” information that it would be unlawful to disclose under any law or contractual restrictions. I had not done any such analysis or formed any such conclusion, and that is not remotely what I intended to convey in that informal chat message.
58. It is surprising to me that Jane Street would suggest otherwise, especially in light of the fact that Jane Street publicly advertises that it is growing its India options trading team.
59. **Exhibit G.** Exhibit G appears to be a portion of a Slack chat between me and Jeff Nanney from September 2023—once again, I do not know why Jane Street included only a portion of that chat conversation. In the excerpted portion of the chat, I asked, “do the more junior people in hkg options [an email listserv within Jane Street] realize how IP sensitive something like our trading PNL [profit & loss] is in India?” (Emphasis added.) I then stated that “our strategies are not that sophisticated and we really hope they’re not talking to brokers or friends about anything we’re doing.”
60. In Exhibit G, my focus was specifically on our group’s profits and loss.

61. Also, for context, detailed information concerning all of our index options trading in India was disclosed widely within Jane Street. As discussed in Exhibit E, my team and I were instructed by management to disseminate information about our trading on multiple email listservs that would relay the information to 100-300 recipients (depending on the listserv). Beyond that, to the best of my recollection the PNL (profits and loss information) of our options trading in India was continuously available to all option traders within Jane Street. Information about our operations was therefore widely available within Jane Street (at least), including to many people who had no need for access to the information.

**I Considered Departing Jane Street For The First Time In December 2023**

62. During my tenure at Jane Street prior to December 2023, I had never accepted or sought out interviews with other firms. The first time I seriously considered leaving Jane Street was in December 2023, as a result of my annual review. On the heels of the most successful year of my career, my annual review came as a huge disappointment. I felt that the contributions to Jane Street from the S&P 500 options business and the India options business—which, combined, generated [REDACTED] in profits for Jane Street during my time there—were undervalued. I felt that I was not given a clear or rational path to advancement within the firm and that my compensation was not on par with my contributions. I believed that, in my annual review, Jane Street overemphasized minor criticisms to justify a lack of advancement and compensation that was out of line with my contributions. I believe I function best in an entrepreneurial environment and began to think that Jane Street was no longer the best fit for me.

63. I was transparent about this with Jane Street. I told my managers, Sandor Lehoczky and Andrew Westerdale, that I expected I would begin interviewing at other firms as a result of these issues. Soon thereafter, I began speaking with other firms about employment.
64. While my compensation at Jane Street was very heavily tied to the performance of Jane Street as a whole, Millennium's compensation structure will provide me (and my team) with a percentage of the profits we generate from our trading activity. I believe this aligns my interests with the interest of Millennium and its investors. And it is a structure that is more compatible with my personality.

**I Told Jane Street's CEO What I Would Be Doing  
At Millennium And He Expressed No Concern (Instead, He Wished Me Luck)**

65. When I was leaving Jane Street, I was specifically asked by Sandor Lehoczky, the *de facto* CEO of Jane Street, what I would be doing at Millennium. I told Mr. Lehoczky that I would be working to build out a new team at Millennium likely focusing on Asia and U.S. index options trading businesses. As Jane Street knew, these areas reflect my primary and most profitable areas of work during my tenure at Jane Street: S&P 500 options and India index options. I also told Mr. Lehoczky that I would start work at Millennium the following week and would learn once I started the full scope of infrastructure Millennium had already built for the different trading businesses I was considering.
66. At no time while I was exiting Jane Street did anyone at Jane Street express any concern or provide any warnings about me trading India options at Millennium, nor did Jane Street request that I delay my start at Millennium.
67. To the contrary, after my resignation conversation on February 5, 2024, Mr. Lehoczky texted me to wish me well. He wrote that "your impact on the firm was huge and I don't

know how we can fill the gap left,” and that “I’m grateful to have gotten to work with you and learn from you,” and that “I really wish the best for you and hope things work out well in the new operation” which he must have known (from our conversation and from my areas of work experience) would involve me [REDACTED] in Asia, including India.

68. During my resignation process at Jane Street, I spoke with Mr. Lehoczky to identify other Jane Street personnel who could take on responsibility for the S&P 500 and India options trading business and provided feedback and answered questions to ensure a smooth transition.

69. I believed that my departure was amicable and that Jane Street held good will towards me given that I was responsible for setting up and overseeing businesses that had generated tremendous profits for Jane Street. In 2022, the S&P 500 index options trading business I built and oversaw generated [REDACTED] in profits for Jane Street. In 2023, in the last year of my tenure at Jane Street, the India [REDACTED] business I was instrumental in building and oversaw generated [REDACTED] in profits for Jane Street. Jane Street has no external investors, so the entirety of these profits (net of business expenses) would be distributed to current and past employees of Jane Street, primarily its equity partners.

#### **My Employment At Millennium**

70. I left Jane Street and accepted a position at Millennium in February 2024. Before I began work at Millennium, I made Millennium aware of the 2023 Schadewald Agreement and confirmed to Millennium that my trading activity would abide with my obligations under that agreement.



71. I have repeatedly built or significantly expanded [REDACTED]

[REDACTED]

[REDACTED] options (at Jane Street).

72. I intend to achieve similar levels of success at Millennium as I achieved within Barclays and Jane Street using my own hard work, skill, and general experience and expertise accumulated over my years of work since I graduated college. I am an entrepreneur at heart and starting new trading businesses from the ground up is a large driver of my personal happiness.

73. At Millennium, *I have not in any way, shape or form, consulted, relied on, or disclosed any of Jane Street's confidential, proprietary, or trade secret information.* To the contrary, I have made and continue to make every effort to ensure that I comply with all of my obligations as set forth in the 2023 Schadewald Agreement.

74. The strategies my team and I have developed and applied in the Indian options markets rely on *the skillful application of well-known options trading strategies to publicly available information.* In other words, every single one of the trades that my team and I have done at Millennium fall into the General Knowledge Carve-Out in Section 1.3 of the Confidentiality and Intellectual Property Agreement.

75. Broadly speaking, these strategies fall into the following categories, all of which are readily known to professional options traders and for which there is an abundance of public reporting, analysis, and literature: [REDACTED]

[REDACTED]

[illegible]

76. I was aware of and/or deployed each of these commonly known strategies prior to my employment at Jane Street—and none of these strategies or my team’s trades have been based on confidential or proprietary information I learned at Jane Street.

77. Since my direct reports and I began trading [REDACTED] at Millennium on or about February 23, 2024, through April 15, 2024, Millennium has generated

[illegible]

approximately \$4 million in net profit through our efforts. Based on the notional amount of options trading on the Indian market during March, my calculations indicate that Millennium's trades in March accounted for less than half a percent of the overall volumes.

### **The Complaint's Allegations**

#### ***The India Options Market Is A Well-Known Opportunity For Arbitrage Traders***

78. The Complaint appears to suggest that the existence of inefficiencies within the Indian options market and the size of this market are trade secrets or proprietary to Jane Street. Compl. ¶¶ 2 (“a latent economic opportunity in a specific market”), 39 (a “reve[lation] that the market was capable of accommodating atypically large positions”). This is not correct.
79. The Indian options market is the largest options market in the world by volume. On a given day in recent months, approximately \$4 trillion notional of same-day expiring options trade in India, and many institutional competitors exist. By comparison, the most active U.S. global index, the S&P 500, trades approximately \$1.5 trillion notional per day across all expirations. As the Wall Street Journal recently reported based on data from India's National Stock Exchange (the “NSE”), the value of equity derivatives traded on the NSE has “exploded” in recent years:

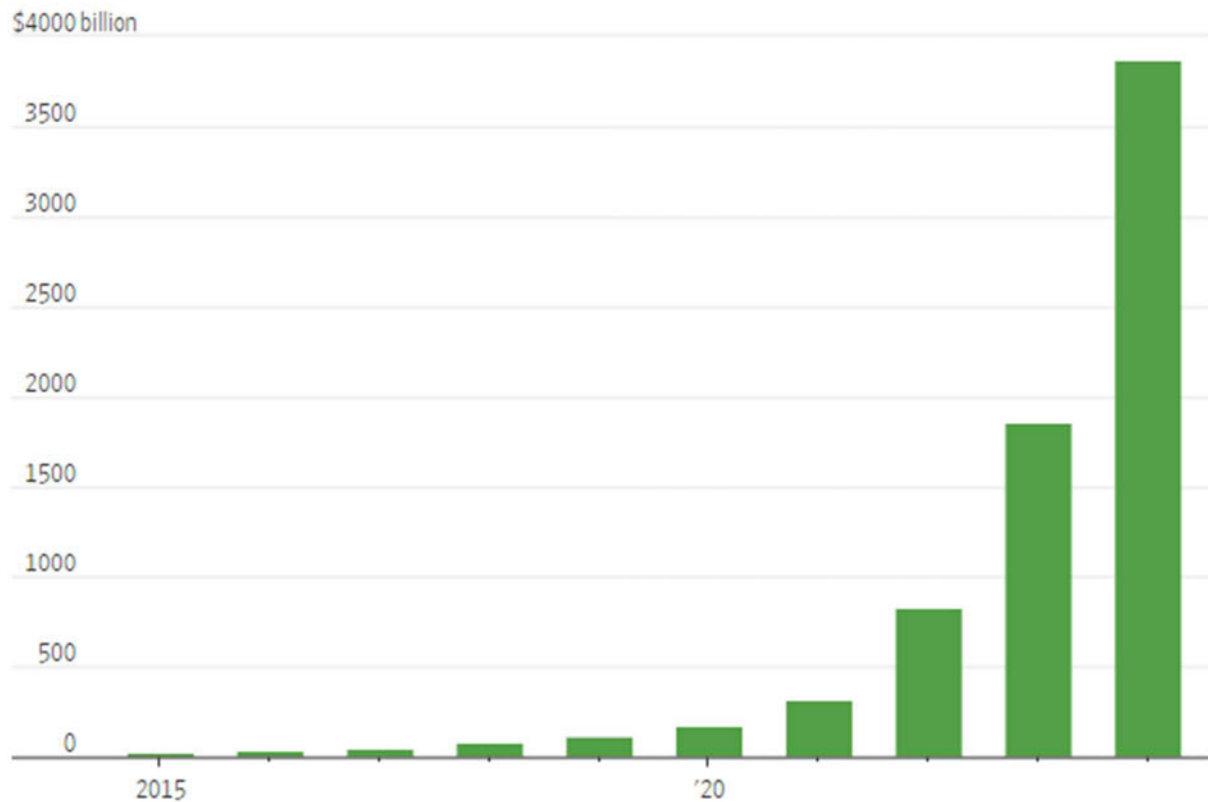
Figure 1<sup>12</sup>

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<sup>12</sup> Megha Mandavia, *Eighty Percent Of The World's Stock Options Aren't Traded Where You Think*, WALL ST. J. (Mar. 11, 2024, 6:48 AM), <https://www.wsj.com/finance/stocks/eighty-percent-of-the-worlds-stock-options-arent-traded-where-you-think-35a46ddc>.

### Equity Derivatives Explode in India

Average daily turnover in the equity derivative market on the NSE over the last decade



Note: Financial year ends March 31 in India, 2024 data is year to date; \$1 = 82.76 Indian rupees

Source: National Stock Exchange

80. [REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

81. Thus, the [REDACTED] indicated that the Indian options market has been and could continue to be valuable for options market-makers such as Jane Street

13 [REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

and others. This report was widely discussed amongst senior option traders at Jane Street, including Jeff Nanney.

82. The strong presence of individual investors in India's options market has significant implications for options traders. Individual traders may be more prone to trading irrationally leading to inefficiencies in the financial markets they participate in.

83. [REDACTED], its findings on the magnitude of demand for options in Indian markets have been repeatedly confirmed by public reporting and observations by industry observers made available to the public.<sup>14</sup>

84. The Indian options market has also been publicly known to present arbitrage opportunities for some time.<sup>15</sup> Together, the market's arbitrage opportunities and rapid growth in recent years present an attractive opportunity for investors who are skilled at trading options markets.

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14

[REDACTED]

<sup>15</sup> See Deepak Joshi & Gaurav Konar, *An Empirical Analysis of Market Efficiency in Indian Options Market*, INDIAN INST. MGMT. BANGALORE (2011), <https://repository.iimb.ac.in/handle/2074/18226>.

85. Multiple financial firms across the industry have been entering the Indian options market or expanding their existing operations. On April 11, 2024, Bloomberg reported on the rapid expansion that had been taking place<sup>16</sup>:

*Signs of expansion are everywhere.* Optiver, one of the world’s biggest high-frequency trading firms, opened an office in Mumbai in December. Citadel Securities LLC is hiring for their new office in Gurugram. HSBC Holdings Plc and UBS Group AG, which left the onshore private-wealth market around a decade ago, are putting boots back on the ground. Local firms are growing too, with the likes of ICICI Securities Ltd. looking to double its number of wealth managers....

*Market makers are seeing opportunities too,* with Dutch leader IMC Trading BV one of those staffing up. It had less than 10 people in its India operation at the end of 2021. By March, it had around 60 — and has just signed a new office lease that should be able to comfortably host 170-people, said Jocelyn Dentand, managing director of its India unit.

“We didn’t anticipate to grow as fast,” said Dentand. He points to *the huge opportunities in equity derivatives—India is the world’s biggest options market by volume—as a major draw.* “You see tremendous, tremendous level of activity and tremendous growth.”

86. Also, as noted above in paragraph 51, Jane Street publicly advertises that it is seeking new talent to expand its Indian options trading operations.

***Millennium Is Not Using Any Strategies That Jane Street Identifies In The Complaint***

87. **Signals, Machine Learning, Trading Methods.** The Complaint vaguely discusses “key signal information,” “insights,” “multi-modal signals leveraging machine learning,” “methods,” “heuristics,” and “trading methods ... including optimization and fine-tuning” concerning the Indian options market in general terms, but these are concepts or words that apply generally to any manner of options trading.

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<sup>16</sup> Ishika Mookerjee, Preeti Singh, Suvashree Ghosh & Chanyaporn Chanjaroen, *India’s Top Traders Are Raking In Million-Dollar Salaries*, BLOOMBERG (Apr. 11, 2024, 5:00 PM), <https://www.bloomberg.com/news/articles/2024-04-11/india-s-top-traders-are-raking-in-million-dollar-salaries-as-china-slows> (emphasis added).

88. The only aspects of Jane Street’s description of its “Validated Trading Methods” that have specific meaning to me are the code-named strategies identified in the complaint (“[REDACTED] [REDACTED]”) that Jane Street’s methods supposedly depend on. Compl. ¶ 52(1). Bafflingly, the Nanney Declaration makes no reference to any of these code-named strategies, which leaves me at a loss as to what Jane Street believes I have done wrong.

89. I am familiar with [REDACTED] from my time at Jane Street. Generally, these refer to defined categories of trades that Jane Street may execute under certain market conditions. “[REDACTED]

[REDACTED]  
[REDACTED]  
[REDACTED]  
[REDACTED]  
[REDACTED]  
[REDACTED]

90. Neither I, nor, to my knowledge, Daniel Spottiswood, uses any of WC, Chai, Daffodil, Hyssop, Clementine, Funda, Radicchio in trading on behalf of Millennium. Nor do we intend to do so—even though certain of these trades are based on widely known and discussed patterns and trends.

91. **Trading Investigation.** The Complaint also refers to a 2023 Trading Investigation which, according to the complaint demonstrated to Jane Street that the options trading volumes in India were legitimate and that Jane Street could [REDACTED]  
[REDACTED] thereby increasing profits. But over the last year, after that

investigation, there have been numerous public articles detailing how large and liquid the Indian options trading market is, including a February 13, 2024 article by The Economic Times which noted the following points:

- “retail investors account for 35% of options trading, while institutions, aiming to mitigate risk or generate profits for their companies, manage the remainder”;
- “In the year ended March 2022, the latest for which figures are available, investors lost \$5.4 billion” in trading India options.<sup>17</sup>

92. Moreover, investigative work concerning the [REDACTED] is standard practice in trading and is known to brokers who are regularly willing to provide this sort of information upon request.

93. Regardless, even if the findings from the 2023 Trading Investigation were not stale and duplicative of publicly available information, my team at Millennium has not traded on or benefited from Jane Street’s findings, particularly given the much smaller scale at which we are trading and the much tighter risk tolerances in place at Millennium. *See below* ¶ 100. The size of our trading and positions, as evidenced by our cumulative trading profits and loss and percentage of volume, pales in comparison to Jane Street’s massive operation.

94. **Intra-day Models**. The Complaint references “Intra-day models” predicting [REDACTED] [REDACTED]. We do not have any such models in place at Millennium and are not using any such models, although intra-day models could be built using [REDACTED]

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<sup>17</sup> [REDACTED]  
[REDACTED]  
[REDACTED]



[REDACTED]

[REDACTED]<sup>18</sup>; the concept of intra-day models to track retail trade flow is not unique to Jane Street and is commonly used by banks and fund managers globally in formulating options volatility strategies.

**The “Strategy” Described in the Nanney Declaration Is Neither Proprietary Nor A Strategy**

95. The Nanney Declaration describes Jane Street’s “Trading Strategy” as incorporating

“[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED].” Nanney Decl. ¶ 12. Although stated in terms of jargon, these parameters are all incredibly simple concepts that any options trader would consider trading in any market.

- a. “[REDACTED]

[REDACTED].” Generally speaking, options traders hope to buy a given option when its price is low and sell it later when price is higher, and vice versa. Every options trader who buys an option believing that they will be able to sell it later at a higher price is “forecasting changes in option prices” at some “time scale.”
- b. “[REDACTED].” Any manner of data can be considered a signal. For example, the current price of Toyota or General Motors stock is an important signal for anyone trading in those stocks. Because stock prices updates

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18 [REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]. A trader who buys a share of  
General Motors stock [REDACTED]

[REDACTED].” This particular signal is referred to as  
“[REDACTED].”

c. “[REDACTED].” [REDACTED]  
[REDACTED]  
[REDACTED]  
[REDACTED]  
[REDACTED]  
[REDACTED]

d. “[REDACTED]  
[REDACTED].” [REDACTED]  
[REDACTED]  
[REDACTED]  
[REDACTED]  
[REDACTED]  
[REDACTED]  
[REDACTED]  
[REDACTED]  
[REDACTED]

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19 [REDACTED]  
[REDACTED]  
[REDACTED]  
[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

e. “[REDACTED].” [REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

96. None of these basic concepts identified in Paragraph 12 of the Nanney declaration is unique or proprietary to Jane Street, but instead are factors that any options trader would consider every day.

97. Paragraph 14 of the Nanney Declaration states that Jane Street’s strategy is “evidenced by

[REDACTED]

[REDACTED].” I am unable to discern from Mr. Nanney’s description what Jane Street claims is the “trading strategy” that I supposedly misappropriated, because this description encompasses a huge range of options trading.

a. “[REDACTED].” [REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

There is nothing unique or proprietary about an investment portfolio that has [REDACTED]

[REDACTED]. In any investment portfolio, there are only [REDACTED]

[REDACTED].

b. “[REDACTED].” [REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

98. Paragraph 14 of the Nanney Declaration is so broad that it does not describe a strategy. It describes the entire universe of options trading. When you reduce options down to their simplest form, there are really only 4 different types of bets you can make: (1) that volatility will be low (and thus you should sell options), (2) that volatility will be high (and thus you should buy options), (3) that the underlying equity/index that you are trading will go up (and thus you should either buy calls or sell puts), (4) that the underlying equity/index that you are trading will go down (and thus you should either buy puts or sell calls). The Nanney Declaration seems to imply that Jane Street’s proprietary “Trading Strategy” is 1, 3, 4, and (less often) 2. But if Jane Street were able

to restrict other options traders from engaging in those strategies, Jane Street would be the only options trader left.

99. To the extent the Nanney Declaration suggests that Jane Street is the only market participant who buys volatility or delta from, or sells volatility or delta to, retail investors in the India options market, it is absolutely wrong. Many institutional investors buy or sell volatility and delta to or from retail investors through the India options market.

100. The only meaningful point of distinction that I can discern from Paragraph 14 of the Nanney Declaration is its references to the [REDACTED] in this market (i.e., [REDACTED]

[REDACTED]  
[REDACTED]”). I believe that Jane Street is [REDACTED]  
[REDACTED]  
[REDACTED].

101. In this respect, Millennium is taking a very different approach than Jane Street. My management at Millennium has mandated daily loss limits—i.e., the amount of capital that my team and I are permitted to risk losing in a given day—of [REDACTED]. By contrast, in my experience at Jane Street, we frequently took positions that could result in losses [REDACTED] in a given day. Therefore, on the only dimension of the so-called Trading Strategy that I can meaningfully discern from the Nanney Declaration, Millennium looks nothing like Jane Street.

***Before I Arrived, Millennium Already Had In Place Much Of The Infrastructure, Approvals and Broker Relationships Needed To Trade In The India Options Market***

102. Jane Street's Complaint describes interactions with its trading broker (Compl. ¶¶ 153-158) and then speculates that this episode somehow suggests that my team and I are using Jane Street proprietary information.

103. While I was employed at Jane Street, I heard others express (and I expressed) that, due to certain practical barriers to entry, competitors would not be able to begin trading options in India overnight. Rather, it appeared reasonable to believe that it would take competitors months or even years to set up trading infrastructure and gain the governmental approvals necessary to trade options in India. One of those practical barriers is the need to set up a locally approved entity as well as processes with a broker to execute trades on the major exchanges in India.

104. After I began working at Millennium in February 2024, I was surprised to learn that Millennium already had in place for some time much of the infrastructure necessary to trade options on the NSE.

105. When I joined, I was told that Millennium already had pre-existing relationships with more than ten executing brokers in India, including the broker I believe Jane Street refers to in Paragraphs 153-158 of the Complaint. This broker, [REDACTED], is one of several significant brokers available to trade options in India and is one of only a few brokers that I am aware of set up to trade options on the BSE with capabilities needed by an international institutional firm. So, to my knowledge, it is very likely that any such firm seeking to trade options on the BSE would trade through [REDACTED]

***Jane Street's Broker Had Suspended Trades Before I Joined Millennium: Suspension Of Trades Is Common (Not An Indicator Of Misuse Of Confidential Information)***

106. While I was at Jane Street, it was my experience that due to nuanced and complicated margin requirement rules issued by the exchanges, it was not uncommon for brokers to be restricted by margin limits such that additional trades were not able to be executed. For example, Exhibit C is an email chain from September 2023, while I was still employed at Jane Street, including an email from Clement Woo that makes reference to this phenomenon. Mr. Woo's email refers to "our proximity to ... margin limits." Plts. Ex. C at 1. The "margin limits" referred to in Mr. Woo's email are those that were imposed through the broker. As Mr. Woo's email implies, due to these margin limits we had to alter or halt our trading to accommodate the margin limits; otherwise, our trades would be suspended and not executed.

107. In my experience, the India exchanges' margin requirements are a persistent constraint on many different types of activity, some of which have nothing to do with any particular trading strategy. This is different from exchanges in many other markets. Moreover, the actions of third parties who use these same brokers could also impact the broker's required level of margin at a given time.

108. Based on my experience, that a broker used by both Jane Street and Millennium experienced a constraint based on the exchange's margin requirements is hardly surprising; this is a common occurrence on these exchanges. And because margin is required for all sorts of different transactions, this event does not suggest that Millennium employed any particular strategy, much less one that constitutes Jane Street's intellectual property.

*I Have Not Done Algorithmic or Automated Trades*

109. To the extent that the Complaint asserts or suggests that my team and I have engaged in algorithmic or automatic trades, we have not. Every single Indian options trade that we have executed at Millennium has been based on manual execution through brokers.

***Reduction In Jane Street's Profits Is Not Attributable to Millennium***

110. The Complaint asserts that Jane Street's reduction in profits—from an average of [REDACTED] in January and February 2024 to [REDACTED]<sup>20</sup> in March 2024—must necessarily be attributable to my and Mr. Spottiswood's trading activity at Millennium and that our trading activity must necessarily mirror Jane Street proprietary strategies. Compl. ¶¶ 57, 60, 142-43.

111. Jane Street's conjecture is incorrect—Millennium did not reap the profits that Jane Street claims to be missing; Jane Street also ignores other factors that better explain its reduction in profits. Given its sophistication, Jane Street was either intentionally misleading or extremely careless in making these allegations.

112. As described above at paragraph 77, Millennium's net profits on our trading to date is approximately \$4 million. Put simply, Jane Street's reckless speculation that its "loss" of \$150 plus-million in profits (between February and March) was profit taken by Millennium, is not only wrong but impossible. Jane Street also claims in the Complaint that my team and I could "virtually guarantee significant profits on day one" if we mirrored Jane Street's proprietary strategies. Compl. ¶ 128. That may be so—Jane Street's claimed profits of [REDACTED] ([REDACTED]), depending on which of Jane

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<sup>20</sup> The Nanney Declaration asserts a different number, [REDACTED], for March 2024.



Street's filings you reference) in March alone are certainly quite impressive—but if that is true, my team's far more mixed results so far demonstrate that we are not mirroring Jane Street's strategies.

113. Instead, the “change in trading profits” Jane Street claims between the months of January-February and March may result from at least four other factors.

a. **First**, the Indian exchanges' 2024 trading calendar contains two holidays in January (January 22, January 26), zero holidays in February, and three holidays in March (March 8, March 25, March 29). Factoring in weekends and holidays, January and February each had **21 trading days** where March had only **18 trading days**. Because March had 14.3% fewer trading days than January and February, one would expect Jane Street's profits in March to be **14.3% less** than January and February even if everything else remained constant.

b. **Second**, January was an especially volatile month, as [REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED], so comparing January profits to

March profits is not an apples-to-apples comparison. March was a relatively calm month by comparison. This is demonstrated by comparing the realized volatility metrics in the most commonly traded and profitable Index—NSEBANK—for the January-February period versus March. Per Bloomberg HVG using the CLR Model (a standard way to calculate realized volatility), the realized volatility

metric was 17.93 for the January-February period (42 business days) versus 8.33 for March (18 business days). Because profitability of options trading at a market-maker or trading firm is generally linear with realized volatility, one should reasonably expect that March should see an approximately **53.5% drop** in profitability for NSEBANK options trading relative to January and February. For the same reasons, indices other than NSEBANK would also be expected to show lower volatility, and therefore profitability for options, in March relative to January and February.

- c. *Third*, between January-February and March, Jane Street lost two key personnel, myself and Daniel Spottiswood, responsible for its options trading in India. As Jane Street recognized when it hired me (see above ¶ 11), I am an [REDACTED] [REDACTED] and have been recognized within the industry as highly skilled in this field. When I left Jane Street, Sandor Lehoczky, one of Jane Street's highest-ranking executives stated to me in a text that "your impact on the firm was huge and I don't know how we can fill the gap left." And [REDACTED] [REDACTED]. Mr. Spottiswood advanced rapidly within Jane Street—he was the youngest trader on the Hong Kong options desk when he relocated there in January 2023, but quickly grew to manage the entire day-to-day India trading operation of approximately 20 Jane Street employees. With his departure, decisions that would have been made by Mr. Spottiswood would now be made by a replacement trader with less experience and less recognized talent.

- d. *Fourth*, while trading India [REDACTED] was very profitable during my time at Jane Street, in my experience Jane Street took an extreme amount of risk (which is confirmed by Nanney Decl. ¶ 14) and is susceptible to very large drawdowns in large market moves. For instance, [REDACTED]  
[REDACTED]  
[REDACTED] if there was a large market move. For example, Exhibit C reflects that Jane Street entered the day short [REDACTED]  
[REDACTED] during the day. Because [REDACTED]  
[REDACTED]. In this instance, for every 1% the underlying market moved, Jane Street would likely lose [REDACTED]. These risks were frequently discussed with the most senior partners at Jane Street. Attempting to draw conclusions based on a single month's profits & losses when running such significant risk is irresponsible.

**Harm To Millennium and Markets If An Order Is Granted**

114. Millennium currently holds long and short positions on stocks, single-stock futures, and options on the NSE and BSE. If the Court were to issue a temporary restraining order restricting Millennium's ability to trade in the India options market, it would harm Millennium as well as others that participate in the markets.
115. Some of Millennium's positions, such as its short single-stock futures positions, must be actively unwound, rather than being allowed to expire, to avoid penalties.

116. Additionally, if Jane Street were given advance knowledge that Millennium were required to unwind substantial positions, Jane Street could employ certain trades taking advantage of this information and cause Millennium (and other market participants) further harm. If the Court were to decide to restrict Millennium's ability to trade India options, Jane Street should be restricted from profiting off knowledge of Millennium unwinding.


### **Conclusion**

117. I have not used, and do not intend to use, any trade secrets, confidential information, or proprietary information of Jane Street. Rather, I am trading based on, and intend to continue to trade based on, "information, knowledge, or data that constitutes general skills, knowledge and experience," information that I knew prior to being employed by Jane Street, and "information that is publicly available, generally known or readily ascertainable from public sources"—as I am permitted to do under Section 1.3 of the Confidentiality and Intellectual Property Agreement.

**[signature page below]**

I declare under penalty of perjury that the foregoing is true and correct to the best of my knowledge and belief.

Executed in New York, New York, on April 18, 2024.

By:  4/18/2024

Douglas L. Schadewald